

# **Business Models for E-Learning<sup>1</sup>**

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# Business Models for E-Learning

Dipl.-Ök. Gabriela Hoppe and Prof. Dr. Michael H. Breitner

**Abstract:** E-learning becomes more and more important. Reasons are the paramount importance of knowledge, life-time learning, globalization and mobility. Not all providers of e-learning products succeed in closing the gap between production costs and revenues. Especially in the academic sector e-learning projects suffer more and more from decreasing funding. For many currently active research groups it is essential to market their research results, e. g. e-learning applications, in order to fund actual and future e-learning projects. Basis of a successful commercialization of e-learning products is a coherent and consistent overall e-learning strategy. E-learning strategies have to address economical, pedagogical and technological goals. For ensuring pedagogical and technological quality, different theories and models for e-learning already exist, e. g. the Essen Learning Model (ELM). But there is a lack of theories and models ensuring economical “quality” in terms of marketable and sustainable products. This paper presents a framework for e-learning business models. Its advantage is its suitability for products designed for computer based training (CBT) as well as for web based (WBT) or mobile based training (MBT). The framework is suitable to complete existing e-learning theories and models focusing the pedagogical and technological dimension of e-learning. According to this new approach sustainable business models for e-learning integrate and consolidate strategic propositions concerning market model, activity model and asset model. By analyzing these issues, crucial success factors for the commercialization of e-learning products are identified. Additionally, successful relations between core activities and revenue models are presented.

## 1 Introduction

A discrepancy can be observed: Some providers of e-learning components realize profits by offering e-learning products. They are likely to become key players of e-learning. Others developing with the same or even more effort do not succeed in supplying e-learning products successfully. Potentially useful (“applicable”) e-learning products face used (“applied”) e-learning products. On the one hand, e-learning products are successfully offered by a huge variety of commercial e-learning providers. Many of them have already equipped pilot schemes for company training programs. On the other hand, successful e-learning products are subject to a lot of different research projects. Some of these projects also result in theoretically marketable e-learning products. Especially in the academic sector many e-learning research projects benefit from governmental grants and subsidies. One handicap of these financial aids is their temporal limitation.

Today, for many active research groups it is essential to market their results in order to fund actual and future e-learning projects. A suitable business model is crucial to put their work on a commercially exploitable basis. The business model is part of a comprehensive e-learning strategy [see Ho04].

The definition of a business model is a strategic task for an e-learning provider. Besides an economical dimension (represented by a business model), an e-learning strategy has to consider a pedagogical and a technical dimension, too. The long-term success of an e-learning provider can only be ensured by an integrative e-learning strategy. This paper presents a general framework for creating successful business models for e-learning. This framework is suitable to supplement existing approaches for theories and models of e-learning which focus in particular pedagogical and technological aspects of e-learning. The methodical approach bases on a classification of e-learning products, e-learning providers and business models. Combined with quantitative data describing the e-learning environment suitable business models for different e-learning providers are deduced.

## 2 E-learning products and providers

Learning which is supported and/or made possible by the use of information and communication technology (ICT) is here defined as **e-learning**. ICT may not only act as auxiliary means but has to be immediately connected with the learning process [see SBH01]. E-learning becomes manifest in an individual e-learning system [in detail presented by Ho04], see Figure 1. ICT suitable for enabling or supporting e-learning is called e-learning technology. Part of the ICT are e-learning applications, i. e. software applications which are suitable to support or enable e-learning. Due to their complexity, **four types of e-learning applications** are distinguished: drill and practice applications, (intelligent) tutor systems, simulations and CSCL (computer supported collaborative learning) applications. Applications are the core of an e-learning system because they mediate standardized or individually configured e-learning content. The basic components of an e-learning system which are essential for its functionality are called the **technical system**.

Depending on the technical realization **computer based training (CBT)** and **web based training (WBT)** are distinguished. Didactical options and technological realization of WBT are usually more complex than those of CBT. E-learning products applicable for mobile learning, i. e. for use with handheld devices like laptops or personal digital assistants (PDA), are classified as **mobile based training (MBT)**. Nowadays, MBT is mostly a subgroup of CBT because the technical feasible is not fully exploited. But the MBT sector becomes more and more important and complex.

The technical system is supplemented on the one hand by the manware, i.e. the people who use, administrate, maintain and/or develop other components of the system. On the other hand it is supplemented by the orgware, i. e. all organizational regulations and concepts concerning e-learning and its management. Every part of an e-learning system which can be marketed autonomously is called an **e-learning product**. E-learning products comprise on the one hand hardware, software and content in terms of digital data, e. g. HTML or XML data. On the other hand they comprise services in connection with hardware, software, content, manware and/or orgware. E-learning products are offered by **e-learning providers**. The market for e-learning providers is very intransparent due to the heterogeneity and the multitude of existing providers.

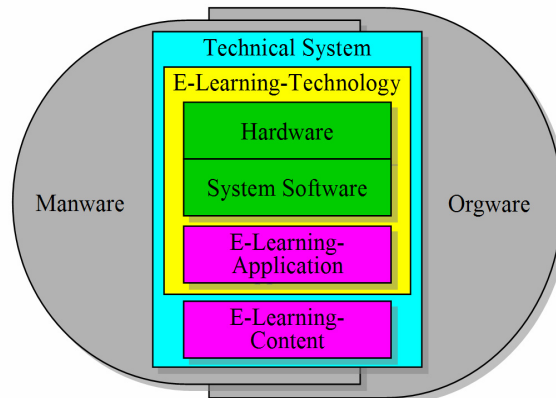


Figure 1: Components of an e-learning system

One reason is that many providers do not exclusively offer e-learning products but belong to different market domains. Basically, commercial and academic research and development (R&D) e-learning providers can be distinguished.

**Academic R&D institutions** often focus the effective and efficient use of individually created e-learning technology for rather complex content. Products are often very specialized for small target groups. Academic R&D institutions mainly concentrate on the pedagogical reasonable or the technological feasible, e. g. the e-learning platform “IWI-ELP” developed by the Institut für Wirtschaftsinformatik (IWI) in Hannover [see In03]. Often, theoretically marketable products are abandoned if underlying research questions are answered and/or financial resources for product development are exhausted. **Commercial providers** often dissociate from research issues and concentrate on economical goals. They focus on the one hand fast-to-produce and easy-to-sell technology which can be created cost-efficiently. This is related to mainly optically very attractive packages and user interfaces and relatively low prices. On the other hand they focus specialized demand-driven products for small user groups and high prices, e. g. flight simulators for pilot training. Mainly, commercial providers focus on supplying e learning products for professional training [see SH00].

The described trends are founded by several surveys which mainly focus commercial providers. One example is that 96% of 161 commercial e-learning providers interviewed in 2001 identified companies as their main target group [see Be01]. In another survey, 59% of the interviewed German e-learning providers focused the national e-learning market [see Pa02]. All providers have to take into account that international (mainly English-speaking) competitors start to enter e-learning markets worldwide successfully. According to the part of an e-learning system they offer, e-learning providers can be divided into different segments:

- **Content providers** offer predetermined e-learning content. Content is either standardized, e. g. business english vocabulary, or individualized respectively individualizable, e. g. company specific simulations. Often content is provided by publishing houses like PONS ([www.pons.de](http://www.pons.de)) or Herdt-Verlag ([www.herdt.com](http://www.herdt.com)).

- **Application providers** offer e-learning applications. Often they cooperate with content providers; e. g. Herdt Verlag as a content provider cooperates with Hyperwave (www.hyperwave.de) and netucate (www.netucate.com). Sometimes, applications are offered as free- or shareware. This relates mainly to academic R&D providers.
- **Hardware providers** offer e-learning hardware. In most cases, hardware is not e-learning specific. Hardware providers therefore often supply non-e-learning segments. Special e-learning hardware can be required due to special type of data, e. g. video or virtual reality equipment.
- **Service providers** offer e-learning services. E-Learning services complement the mediation of e-learning content by e-learning applications. E-learning services can directly relate to learning processes. Examples are the provision of information and communication platforms, e. g. CLIX (www.im-c.de) or of tutorial assistance, e. g. like Teleakademie Furtwangen (www.tele-ak.fh-furtwangen.de). E-learning services can also have a supporting function. Examples for supporting services are hardware support, e. g. hosting services like BildungPlus eLearning Gesellschaft (www.bildungplus.de), software support, e. g. administrative support like e2e – Kommunikation & Entwicklung (www.net2study.de), consulting services, e. g. legal, economical or didactic consulting like BOV AG Bildungsberatung (www.bov.de). Furthermore, supporting services can result in training, marketing, controlling, evaluation or certification related activities. For more examples see e. g. [HB03b].
- **Full service providers** offer all-in-one solutions which comprise products and services in relation with the whole e-learning system.

In Europe, content and application providers<sup>4</sup> represent the biggest market share. In Germany the market trend are full service providers [see Pa02].

### 3 Business models

A **business model** is defined in a comprehensive way. It represents the "architecture for product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various business actors; and a description of the sources of revenues" [Ti00, p. 32]. A business model integrates aspects of specific sectors of business economics represented by single models for each sector. As an essence of different approaches [see particularly Ti00, Wi01 and OP02] three interdependent **partial models** are suggested, see Figure 2. The **market model** defines the various actors, their roles and the market structures. A separation of supply and demand model is useful. Statements about customer segments and positioning of a business are included.

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<sup>4</sup> The survey does not distinguish between content and applications and subsumes the two forms of e-learning providers as „content providers“.

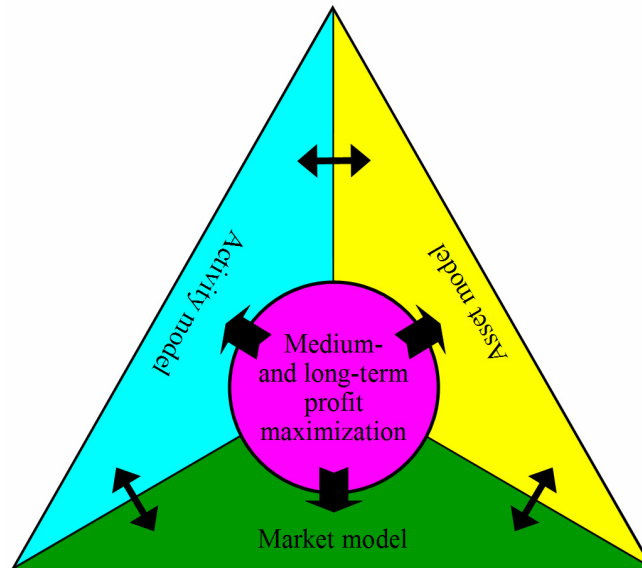


Figure 2: Interdependent partial models of a holistic business model

The **activity model** focuses the activities of a business. The activity model integrates manufacturing, marketing, after sales and support activities and is normally based on the concept of a value chain [see Po96]. The **asset model** comprehends cost and revenue model. The three partial models are discussed in detail by [HB03a]. Profit is as well the incitement as the objective of a business model. Making profit is the intention of a regular business. Companies not making at least medium- or long-term profits are not able to persist. Business models provide an architectural framework for a business strategy. The analysis of business models helps classifying different business strategies and working out reasons and strategies for success or failure of a business [see Wi01]. To grant not only short-term cost-efficiency, business models have to address sustainability. Sustainability is a term stemming from forestry and focusing on preventing ecological resources for later generations. Adopted to economics sustainability focuses on constancy, permanence and preventing economical resources. **Economical sustainability** is medium- and long-term profit maximization. Sustainable products are products offering medium- and long-term customer-value. They persist over a longer period of time. Sustainable supply of products demands sustainable business models. Sustainability in this respect bases on the integration of all partial models. Offering sustainable products is one aspect of sustainable business models.

**Sustainable business models** for e-learning have to consider the following aspects:

- The three partial models of business models have to be defined consistently.
- Target group and market segment have to be chosen carefully.

- Investments must aim on medium- and long-term profit generation. The gap between provision costs and selling price must be closed. This can be realized by minimizing costs and/or by maximizing revenues. Revenues must compensate provision costs and exceed them in the long run.
- Costs minimization can be realized by concentrating on core activities. They should be aligned with the core competencies of a company and reinforce each other [see Po96]. Cooperations and alliances should be considered. Strong partners are besides cost reduction connected with image aspects of an e-learning product.
- Revenues can be earned by different models, in part presented in section 4. They generally differentiate in being generated directly or indirectly and in being generated transaction dependent or independent [see Wi01].
- Due to fast changes in the e-learning environment, the adaptivity and scalability of a business model comes to the fore. **Adaptivity** refers to the ability to adapt to changing market structures, e. g. customers' needs. **Scalability** encompasses development, delivery technology and/or distribution [see Se03].
- Customers are more likely to buy a product with high **customer delivered value**, basing on low-cost and/or differentiated products. Based on this, customers can be bound to a company and its products. This binding can also base on switching barriers. Mid- and long-term customer orientation is required. Third parties are normally interested in sponsoring saleable products. Branding has to be seen in combination with customer binding, too. Brand recognition is one crucial factor for the success of market leaders in e-learning [see Se03].

Our approach is that business models for e-learning provide a framework for the **economical part of an e-learning strategy**. They link the planning level, i. e. planning positioning and objectives of a business, with the process level, i. e. implementing this information [see OP02]. A business model is useful because

- it reduces complex events and relations and helps focusing crucial success factors of a business (above all resources and their transformation into products),
- it forces a provider to consider his opportunities systematically to found decisions,
- it provides a basis for future decisions concerning e-learning activities,
- it supplements e-learning models and theories focusing the pedagogical and/or technological dimension of e-learning, e. g. like the Essen Learning Model (ELM) which serves the improvement of the overall quality of learning environments on different levels. ELM is extensively discussed by Pawlowski [see Pa01]. Especially this point is an interesting improvement of existing theories and models of e-learning.



## 4 Adaptation of the partial models to e-learning

### 4.1 Market for e-learning

The **supply side** of the e-learning market has already been regarded in section 2. A huge variety of e-learning providers can be observed which is divided into five different segments. 2001, a survey figured out that providers compete within these segments whereas there is only little competition between the different market segments [see Be01].

Concerning the **demand side** of the e-learning market it can be observed that e-learning products are to a different extent used in all educational sectors. This results from the need of life-time learning and continuous qualification. Education institutions integrate e-learning in traditional course programs. Completely e-learning-based education institutions evolve, e. g. the British Open University ([www.open.ac.uk](http://www.open.ac.uk)), the German Virtuelle Hochschule Oberrhein ([www.viror.de](http://www.viror.de)) or WINFOLine ([www.winfoline.de](http://www.winfoline.de)). This trend comprehends education institutions as well as institutions for postgraduate professional, technical, further or private education and training.

Today, e-learning is far more used in companies than in education institutions. The demand is not only huge but also manifold. A survey from 2001 identified as main consumers of e-learning products big companies in e-learning affine sectors. Above all are financial service providers, the automobile industry and retailers [see Be01 and Pa02].

E-learning products are not only demanded by education institutions or companies but also by individual, autonomous learners focusing special learning objectives. The learners' will to pay for education in general and especially for e-learning depends on societal, especially cultural conditions. In the USA, education fees are common practice. In comparison to that, e. g. German learners are not used to pay extensive fees for educational technology [see BH02]. The choice of suitable revenue sources has to consider these national aspects. Furthermore, it has to be taken into account that the user of an e-learning product is not always the one who chooses it, implements it and/or pays for it.

### 4.2 Activity model prototypes for e-learning products

An e-learning provider has to enter a specific market segment and has to identify the related customers' needs. Successful e-learning is based on a coherent, harmonious concept including organizational, social, economical and technical aspects. Depending on the didactical and technical complexity of the e-learning system the prerequisites for its use vary. Benefits and costs of an e-learning system are thus combined with its overall complexity. Each component of the e-learning system has its proper benefits; by offering additional services or by embedding it in a comprehensive arrangement, a benefit surplus can be realized. Since the customer delivered value results from benefits *and* costs, less benefit does not mean less delivered value. For example, every type of e-learning application meets specific learning goals.

Regarding the process of manufacturing, marketing and deploying products in a value chain, several possible activities for e-learning providers can be identified. Figure 3 depicts exemplary activity models for e-learning providers which base mainly on deconstructing the e-learning value chain.

Provider \ Activity	Full service provider	Content provider	Application provider	Hardware provider	Service provider
Product design	In-house	Outsourcing	In-house	In-house	In-house
Pricing	In-house	In-house	In-house	In-house	In-house
Content generation	In-house	In-house	Outsourcing	Outsourcing	Outsourcing
Didactic planning	In-house	In-house	Outsourcing	Outsourcing	Outsourcing
Software provision	In-house	Outsourcing	In-house	Outsourcing	Outsourcing
Hardware provision	In-house	Outsourcing	Outsourcing	In-house	Outsourcing
Packaging	In-house	Outsourcing	In-house	In-house	Outsourcing
Promotion	In-house	In-house	In-house	In-house	In-house
Distribution	In-house	In-house	In-house	In-house	In-house
Learning process related services	In-house	Outsourcing	Outsourcing	Outsourcing	In-house
Support activities	In-house	Outsourcing	In-house	In-house	In-house

In-house resources
  Outsourcing

Figure 3: Activity models for e-learning suppliers based on an e-learning value chain (vertically depicted) [modifying Ke02]

A **full service provider** fulfils all activities using in-house resources. This model demands the highest costs for a provider. Concentrating on offering WBT, the activities of packaging and physical distribution are rather low. A **content provider** concentrates on delivering content for applications. Often content generation comes along with didactic planning and at least part of product definition.

**Application and hardware providing** needs a large cost pool if the software respectively hardware is developed individually. Often content and application providers cooperate. **Service providers** can focus manifold activities or concentrate on distinct issues. Typical types of service providers can be found in the literature [see for example Ke02]:

- **Navigators** focus promotion issues.

- **Merchants** are responsible for distributing and billing e-learning products to end users what can for WBT for example be done via learning portals. A **learning portal** is a contact point which matches suppliers and demanders of e-learning [see Ro01].
- **Customer relationship managers** are responsible for managing and above all maintaining contacts with end users.

Besides, service providers can deal with quality management, tutorial assistance, hosting services, and other services exemplarily described above. Besides their core business, all types of providers have to consider marketing issues (product design, pricing, promotion and distribution) as far as their individual e-learning product is concerned. For example, a content provider has to sell his content in terms of a preliminary product to an application provider. Mostly, they all offer also at least basic support concerning their product.

### 4.3 Asset model prototypes for e-learning products

Depending on the activities an e-learning supplier concentrates on, he has to consider the following **costs**: fixed costs for maintaining the company, periodical costs for surveying market structures, variable costs for generating content, promotion costs depending on the chosen promotion media, costs for packaging and distribution, and costs for after sales services.

Regarding the **revenue model** a big difference between commercial and academic suppliers of e-learning products can be observed. Concerning academic suppliers of e-learning products, the gap between costs of production and selling price is very often subsidized by public organizations or by grants. In contrast, commercial providers have to close this gap themselves.

Revenues can be generated **directly** by letting pay the users of an e-learning product or service. Different revenue models imply not only the final users of e-learning products as potential payers. Third parties, e. g. education institutions wanting to offer an e-learning application to its learners, sponsors or data mining agencies, are possible payers, too. In these cases, revenues are called **indirectly** generated. **Transaction dependent** revenues are generated by selling an e-learning product respectively by charging fees for specific additional services, e. g. fees for tutoring paid per time unit or fees for an e-learning news paid per use. **Transaction independent** revenues are generated by charging fees for services which are rather unspecific, e. g. membership fees for an e-learning portal even if you do not use it regularly. It has to be considered that the organizational effort of implementing the models differs [see Kr03].

Centering the revenue aspect, Rappa differentiates nine business models for e-business [see Ra03]. Since the models he presents are commonly found on the WWW they are not all suitable for supplying CBT products. Some of the models he postulates however adopt models being common practice in the "bricks-and-mortar" business.

The suitability of revenue models for specific e-learning providers is discussed in section 5. Six revenue models have been observed to be common in the e-learning sector and are applicable as well to CBT as to WBT and MBT products:

- Earning revenues by **selling e-learning products** bases on list prices. Concerning the R&D sector, grants and subsidies for fundamental research in e-learning are not considered a revenue model for e-learning, because it does not result in marketable products. In contrary, the use of existing resources for applied research that results in specific e-learning products is seen as a special form of selling e-learning products.
- Revenues by **brokerage** come from fees or commissions for bringing interested parties together and facilitating transactions.
- **Membership** fees are levied regularly for participating in regular e-learning services, e. g. a regular newsletter or a forum.
- **Subscription** fees are levied for specific, individually requested services, e. g. an information on e-learning providers in a specific postal area.
- **Advertising** messages can be posted by a supplier of e-learning products. Promoting and/or merchandising the e-learning product and/or related services on the one hand, the supplier earns money by posting advertising messages on the other hand. Advertising can also be the sole source of revenue while products and services are offered for free.
- The **sale of customer related information** to data mining agencies. This revenue model demands the collection of suitable data during the provision process. It has also been taken into account that legal issues may contradict the collection of user data.

## 5 Sustainable business models for e-learning

Some papers introduce best practice examples for e-learning business models [see e. g. Se03]. But the presented business models focus on internet based learning and mainly concentrate on the core activities of an e-learning supplier. Seufert distinguishes Alma Mater Virtualis, Virtual University, University Networks, E-Learning Providers, Education Consortiums, and Corporate Universities. Universities are explicitly emphasized. Our new approach is much more comprehensive. A major advantage is that the business models presented below can be applied to the entire e-learning sector. They abstract from specific educational institutions and explicitly comprehend commercial providers.

A supplier's business model addresses his core business. The core business is defined by the activities he accomplishes with his in-house resources *and* by his revenue model. Both partial models have to be aligned with the actual e-learning market structures. Basing on actual market structures (e. g. market players), typical e-learning activities and common revenue sources business models for e-learning are composed of the elements presented in Figure 4.

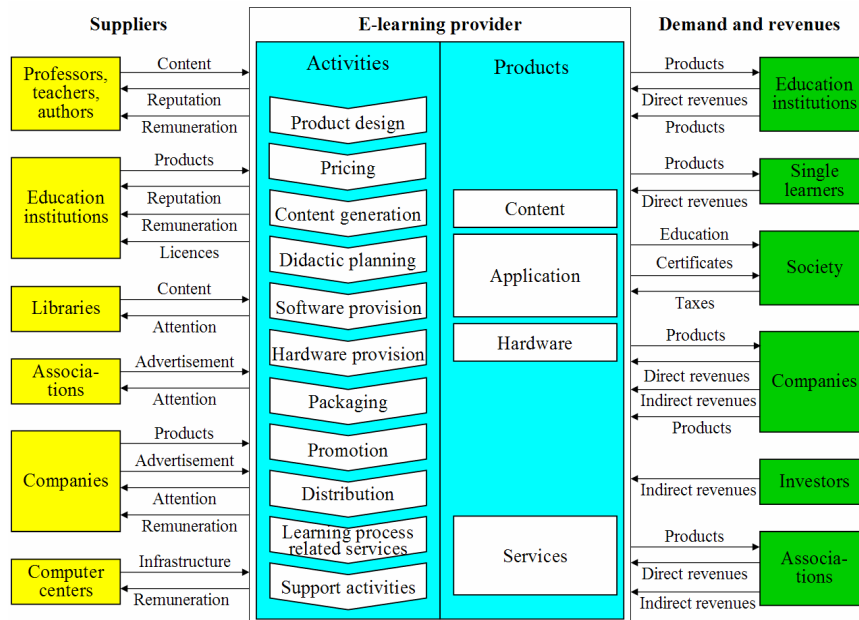


Figure 4: Elements of business models for e-learning [modified from Kr03]

The activity models presented in section 4.2 can be connected to the revenue models presented in section 4.3 to compose consistent, useful e-learning business models. In this respect it is important to generally tell apart e-learning products designed or suitable for CBT from products designed or suitable for WBT. MBT is in this respect considered as a special form of CBT because currently MBT products focus on offline learning with mobile devices. MBT products not yet exploit the technical feasible.

The description of exemplary business models in sections 4.2 and 4.3 already clarified that not each business model is suitable for the computer based *and* the web based supply. CBT applications for example represent rather "traditional" products being marketed like e. g. other software products. Web based products offer new chances and challenges. Especially due to the WWW – and more and more wireless networks like WLAN, GPRS and UMTS – both new kinds of business models evolve and existing business models are reinvented. For example the collection of user data has become more popular by the use of the internet facilitating it. Or the posting of banner ads is a common model for suppliers providing a web site related to the e-learning product.

Table 1 matches activity and revenue models. Colored marks indicate the usefulness of the relations between core activities and revenue sources. Usefulness has to be seen in connection with effort and benefits of implementing the model. The darker the color the more useful the relation. White marks indicate minor usefulness. A supplier can normally not be assigned to only *one* business model. In reality, business strategies are mostly based on a combination of different business models. The presented types of business models are idealized and stereotyped to clarify typical characteristics.

		Activity model															
		Full Service provider		Content provider		Application provider		Hardware provider		Service provider							
		CBT	WBT	CBT	WBT	CBT	WBT	CBT	WBT	Navigator		Merchant		Other services			
Revenue model	Sale of e-learning products																
	Brokerage																
	Membership																
	Subscription																
	Advertising																
	Sale of customer information																

Table 1: Intensity of the relation between core activities and core revenue sources

Comparing costs for implementing the models to realizable revenues, general aspects of sustainable business models for e-learning providers come to the fore:

- Business models based on manifold revenues generally are not to prefer to business models with only one typical revenue source. Critical for a supplier is the balance between investments and likely revenues. Crucial is that the following inequality combining costs (C) with revenues (R) and the likelihood (p) holds:  $C < p \cdot R$ .
- Users coincide not always with payers. Thus, the overall costs of a system are allocated: Companies regard the costs per employee, education institutions the cost per student. These particular aspects have to be considered when choosing the target group.
- Very specialized CBT applications, e. g. flight simulations, are often provided by full service providers. Although the target group is small, they create high revenues since they are relatively high-priced and come along with hardware and support contracts.
- For standardized CBT applications an often observable sustainable business model is the combination of "sale of e-learning products" with "content provider" and "software provider", e. g. Herdt Verlag in cooperation with Hyperwave. This results from relatively low complexity and isolated usability of CBT applications. This business model is not addressed to a specific target group; it matches individual learners as well as education institutions. Standardized CBTs profit from the large target group and often create high revenues even though they are relatively low-priced.
- WBT applications can not only be marketed via networks, but users even access and use them online. They allow the provision of integrated net based services. WBT

services can easily create additional network effects. From a supplier's perspective, these services can be implemented relatively easy and cost-effective, e. g. economies of scale are realized, and cooperations can reduce costs. WBT applications allow the application of supplementary revenue models like brokerage, membership, subscription, advertisement and the sale of user data. Thus, WBT bare huge potentials for additional revenue sources combined with low provision costs. Considering the end user, network costs and opportunities have to be taken into account.

## **6 Conclusions and further prospects**

Different business models suitable for e-learning providers exist. They base on combining core activities with revenue sources based on the market model. The assumption only simple computer based e-learning applications can be exploited successfully is incorrect. Huge potentials for combining several revenue sources with economies of scale and low provision costs can be realized by offering e-learning services.

Sustainability means medium- and long-term success. It bases on concentrating on core competencies, pursuing the right target group, finding suitable revenue models, and then designing the appropriate product. The definition of the three partial models of a business model has to base on interdependent decisions equal in importance. The business model has to be consistent. None of the partial models may be neglected. Customer-orientation, quality in combination with branding, cooperation with strong partners, the creation of win-win-situations and adaptivity and scalability of business models are keywords for sustainability leading to cost-reduction and increasing revenues. Sustainability depends on the success of aligning this combination with the needs of the target group. Lacking sustainability of business models for e-learning providers is mainly caused by inconsistencies in their definition and/or realization.

To foresee future trends is difficult. Considering the development of the conditions of (e-)learning benefits and use of e-learning will increase rapidly. Today, the following reasons suggest sustainable business models also for complex e-learning products:

- Meaning and importance of knowledge permanently increases. There is a need for high-quality learning content and applications which also allow the transfer of knowledge into practice. This makes the advantages of e-learning more valuable.
- Working and educational environment are changing. People are required to adapt quickly – and often on their own initiative – to frequently and rapidly changing knowledge and technologies. The qualification of employees is more and more important. Life-time learning is one keyword of modern job profiles. Learning products which allow fast and easy diffusion and update of information are needed.
- Globalization is omnipresent. Companies are expanding worldwide and are outsourcing functions and activities to other countries with different requirements. Mobility of people is important in this context. Learning products are needed which allow learning continuously and everywhere, i. e. mobile. This bares enormous

potentials for hardware providers who provide specialized mobile learning hardware, e. g. applications for laptops, personal digital assistants and smartphones.

- Societies and especially learners are changing. The readiness to pay for education already increases and a further increase is likely.
- Technical conditions are changing. The development and enhancement of technologies enables price reductions. Hardware, software and network fees decrease. This positively influences the relation between costs and benefits of e-learning.

Considering these reasons, it is necessary to review existing business models systematically in the future. Sustainable business models for e-learning can be derived. Reference business models can be composed for different e-learning products. The possibility to rely on a reference business model can enhance an e-learning-provider's opportunity to market his product more efficiently. In this context, a supplementation of (reference) models for e-learning focusing the pedagogical and/or the technological dimension of e-learning (e. g. like ELM) should be seriously considered.

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